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REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application.

Claims 39-50 and 56-97 are now pending. Claims 39, 47, 56, 58, 59 and 64 are independent. Claims 47-50, 58 and 64-97 are withdrawn. Claims 64-97 have been amended.

Reconsideration of this application, as amended, is respectfully requested.

Restriction Requirement

In the Office Action mailed May 19, 2006, the Examiner makes a new restriction requirement between two groups.

I. Claims 39-46, 56-57 and 59-63 drawn to a printed circuit board (PCB) structure, classified in **class 174, subclass 258**; and
II. Claims 64-97 drawn to an apparatus, classified in **class 174, subclass 258**.

The Examiner alleges that the groups II and I are related as combination and subcombination. Specifically, the Examiner alleges that the combination "as claimed" does not require the particulars of the subcombination as claimed "because combination (an apparatus) may work without subcombination (a printed circuit board) as claimed in claims 39-50, 56-57 and 59-63.". It should be noted that the combination "as claimed" did positively recite "a printed circuit board" in line 2 of claim 64. The first requirement of the combination-subcombination restriction standard is not whether or not the combination might work without a recited element from the subcombination, but rather is there an element recited in the subcombination claim which is absence from the claimed elements recited in the combination claim.

Nonetheless, Applicants have amended the preambles of claims 65-97 such that all of the pending apparatus claims are now directed to "a printed circuit board." In light of this amendment to claims 64-97, it is respectfully submitted that the alleged combination-subcombination relationship no longer exists and that restriction requirement should be reconsidered and withdrawn.

Also, Applicants note that common or related distinguishing features are presented in each of the independent apparatus claims, as argued below. As such, rejoinder and examination of claims 64-97 should be proper.

Regarding Group II, the Examiner notes the presences of three groups of Species in claims 64-97, namely:

Species I:	Figure 1(a), a single structured printed circuit board;
Species II:	Figure 1(a), printed circuit board with five substrates;
Species III	Figure 3(a), printed circuit board with four substrates;
Species IV:	Figure 4(a), printed circuit board includes first and second PCB;
Species V:	Figure 4(b), a printed circuit board with interdigital capacitors; and
Species VI:	Figure 2, printed circuit board with plate-type capacitors.

Applicants asserted in the last Response that Species I and IV are mutually exclusive, that Species II and III are mutually exclusive, and that Species V and VI are mutually exclusive, and those comments are incorporated by reference herein. The Examiner did not contest Applicants' assertion. Upon rejoinder of claims 64-97, Applicants therefore continue to elect (1) the single printed circuit board species (the two PCB species being withdrawn); (2) the interdigital capacitor species (the plate-type capacitor species being withdrawn); and (3) the four substrate

species (the five substrate species being withdrawn). Claims 64-66, 68-71, 73-75 and 79-97 read on the elected species.

The following claims are withdrawn as being directed to the non-elected dual PCB species: 77-78. The following claims are withdrawn as being directed to the non-elected plate-type capacitor species: 67 and 72. The following claim is withdrawn as being directed to the non-elected substrate number species: 76. Applicants request rejoinder of the non-elected species claims, if a generic claim is allowable. In other words, if one of the claims from which claims 67, 72 and 76-78 depends is considered allowable, please rejoin the dependent claims and examine the withdrawn claims on their merits.

Double Patenting

Claim 1 stands provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of co-pending Application No. 10/845,104. This rejection is respectfully traversed.

Claim 1 has been canceled therefore this rejection has been rendered moot.

Rejection Under 35 USC 103

Claims 39-46, 56, 57 and 59-63 stand rejected under 35 USC 103 as being unpatentable over Aekins (US 6,057,743) in view of Ninomiya (US 2001/0048592). This rejection is respectfully traversed.

Regarding independent claim 39, the Examiner admits that Aekins fails to show "a ratio of the first magnitude to the second magnitude varies with frequency." Regarding independent claim 56, the Examiner admits that Aekins fails to show "wherein a difference between the first dielectric constant slope and the second dielectric constant slope is at least 0.15 per decade of frequency." Regarding independent claim 59, the Examiner admits that Aekins fails to show "the first rate of change and the second rate of change differ by between about 0.15 to about 0.45 per decade of frequency."

In each instance, the Examiner turns to Ninomiya as a teaching reference to cure the deficiencies of the Aekins disclosure. On page 8, lines 5-7 of the Office Action mailed May 19, 2006, the Examiner correctly notes that:

> Ninomiya teaches using for high-speed signal line decoupling capacitor with material with dielectric constant different to dielectric constant of the material for capacitor for low-s*[p]*eed line (for power supply)(page 3, [0048],[0049] and [0050]).

However, Applicants cannot agree with the Examiner's following conclusion on page 8, lines 7-9:

> So a first rate of change with frequency is different with the second rate of change with frequency.

Applicants have thoroughly reviewed the Ninomiya published application, and nowhere did Ninomiya teach that the material used for the capacitor of the high-speed signal line had a dielectric constant vs. frequency slope that is different from the dielectric constant vs. frequency slope of the capacitor used for the power supply line. Rather, Ninomiya only teaches that the two materials should have different dielectric constant values, which would have resulted in different capacitance values, and not necessarily in dielectrics that vary with frequency, and

certainly not necessarily in two dielectrics that vary differently with frequency, e.g. different frequency slopes for the dielectric constants.

There is a fundamental difference between the topics of different dielectric constant values (as discussed by Ninomiya) and different frequency slopes for dielectric constant values (as discussed in the present invention). Ninomiya is simply not concerned with any frequency slope for the dielectric constant value, e.g. rate of change in the dielectric constant value corresponding to a change in frequency.

Ninomiya's invention concerns memory boards in a PC. The power supply line, and more specifically the capacitor related to it, would not be designed to have a dielectric constant value which varies as a function of frequency of the applied signal. There would be no need to design such a capacitor in such an environment, since there conventionally should be no frequency changes in the power signal of a PC. Therefore, Ninomiya makes no mention of any dielectric constant which has a frequency slope.

Since Ninomiya makes no mention of frequency slopes for the dielectric constants of the capacitors in his circuit board, Ninomiya cannot teach the features from independent claims 39, 54 and 59 quoted above.

For the reasons stated above, reconsideration and withdrawal of this rejection are respectfully requested.

Claims 64-97

Independent claim 64 recites a combination of structural features including a second dielectric that has a second rate of change with frequency different than the first dielectric by at least about 0.15 across a decade of frequency. For the same reasons advanced above, Ninomiya fails to teach such dielectrics in the combination as claimed. Ninomiya only teaches capacitors with different dielectric constants. Ninomiya makes no mention that the two dielectric constants would change with frequency, that the two dielectric constants would change at different rates, or have any teaching about a range of the difference in the change, e.g. a difference in the change between the first and second dielectric constant values amounting to at least about 0.15 across a decade of frequency.

Therefore, claims 64-97 should also be considered allowable.

Conclusion

In the event that any outstanding matters remain in this application, the Examiner is invited to contact the undersigned at (703) 621-7140 in the Washington, D.C. area.

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn.

It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

Application No.: 10/800,696 **Docket No.:** 4799-0114P

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 50-3828 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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